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Recommendations for Making the EU F-Gas Regulation a Success

Making the European Union (EU) F-Gas Regulation a success must be an absolute priority for Member States. It not only ensures compliance with the Kigali Amendment to the Montreal Protocol and supports international climate commitments on greenhouse gas emission reductions, but also represents cost-effective means of reducing overall emissions in line with *A Roadmap for Moving to a Low Carbon Economy in 2050*. Moreover, a successful pathway to implementation will pave the way for low-GWP sustainable technologies to reach developing countries, allowing the EU to leverage its early action to address hydrofluorocarbons (HFCs) globally while also providing new market opportunities for European companies.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

- The HFC phase-down is operating as intended, with prices increasing to around €20 CO₂e tonne, well within the range considered reasonable climate mitigation for these sectors.
- Member States should ensure that their certification programmes require mandatory training on natural-refrigerant technologies, and should further encourage the Commission to set out minimum requirements via implementing acts to promote a harmonised approach.
- Member States must be particularly vigilant to safeguard the upcoming revision of standards to allow for the safe use of flammable refrigerants, in particular by engaging early and exercising active oversight of their national members on the standardisation bodies.
- Recent calls by fluorochemical associations for contractors to stop installing equipment relying on certain HFC chemicals underscores the value of market restrictions (bans), and Member States should make use of them in key subsectors to guide the HFC phase-down within their borders.
- Public procurement is an opportunity for Member States to promote the uptake of climate friendly alternatives in air-conditioning and catering facilities (refrigeration) in public buildings, such as offices, schools and universities, social housing, hospitals and clinics.
- Member States should ensure end users are aware of the requirements of the F-Gas Regulation and can drive change through their demand for HFC-free technologies upwards through the chain to suppliers and manufacturers. Member states should identify where financial and other incentives are needed to assist small and medium sized end users to adopt low-GWP technologies.
- The EU should adopt an HFC licensing system without delay, as required under the Kigali Amendment to the Montreal Protocol, to mitigate the ever-increasing risk of illegal trade.

The Environmental Investigation Agency (EIA), Climate Advisers Network, ECOS, ECODES, Legambiente and ZERO believe the current situation is an opportunity to improve the EU F-Gas Regulation. Below, recommendations are provided on actions that can be taken by national authorities and the Commission to ensure the EU F-Gas Regulation, and in particular its HFC phase-down, is a success.

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INTRODUCTION

The EU F-Gas Regulation is at a critical juncture.

In the coming years, the HFC phase-down will begin its dramatic transformation of the European marketplace, reducing HFC supplies in carbon-dioxide equivalence (CO₂e) by 37% in 2018 and 55% in 2021. This corresponds to reductions of 48% and 64%, respectively, when adjusted for pre-charged equipment (PCE) and exempt uses.¹

Despite stockpiling in 2014 (62% of an annual supply), the freeze in 2015 and 7% reduction in 2016 have already had a significant impact on the marketplace. In particular, they have resulted in HFC shortages and price increases across the EU by late 2017,² causing some concern among stakeholders, expressed through a number of institutions representing the refrigeration, air-conditioning and heat pump (RACHP) sector. According to the Commission, the price increases experienced so far—to around €20 per carbon-dioxide-equivalent (CO₂e) tonne—are far below the €50 per CO₂e tonne considered reasonable climate mitigation under *A Roadmap for Moving to a Competitive Low Carbon Economy in 2050*.³ Thus, although there are challenges to the HFC phase-down, reduced supplies resulting in price increases are clearly part of the process and the impetus to move to low-GWP alternatives to HFCs.

The 2018 phase-down step does, however, represent the single largest percentage reduction of any phase-down step and Member States must be active to ensure its implementation. Technological transitions are required in several large sectors, including in some where alternatives are under-commercialised or still subject to barriers to their market penetration. If the pressure of the HFC phase-down is maintained, coupled with commonsense national measures to facilitate its achievement, these sectors will cross tipping points, unlocking additional investment in and production of natural-refrigerant technologies while fast-tracking the removal of barriers, including training on the safe handling of flammable refrigerants and the revision of outdated standards restricting their use. These tipping points will not be crossed, however, if the HFC phase-down is weakened with exemptions or equivalent measures. Moreover, a transition to medium-GWP HFCs and blends should be avoided, as it will only exacerbate the 2018 phase-down step and cause financial harm to those companies installing them, especially during future reduction steps in 2021 and 2024 when HFC supplies will be further restricted.

The primary consideration for national authorities and the Commission should be to chart a sustainable pathway to the wholesale adoption of efficient natural-refrigerant technologies in the cooling sector.

TRAINING AND CERTIFICATION

I. Background

Mandatory training of contractors on natural-refrigerant technologies and their safe handling was a major issue during the negotiation of the EU F-Gas Regulation. The issue was whether to require theoretical knowledge and practical instruction on natural-refrigerant technologies as part of the mandatory certification programmes in Member States. The fluorochemical lobby strongly opposed mandatory natural-refrigerant training, seeking to maintain their competitive advantage with non-flammable HFC alternatives. The European Parliament advocated a more thorough regulatory framework, one that included mandatory training on natural-refrigerant technologies, but ultimately only secured a lesser commitment, namely that: (i) certification programmes must provide “information on relevant technologies to replace or to reduce the use of fluorinated greenhouse gases and their safe handling”;⁴ and (ii) Member States must ensure access to information on “existing regulatory requirements for working with equipment containing alternative refrigerants to fluorinated greenhouse gases.”⁵ The result is a system that disproportionately impacts small- and medium-

sized enterprises (SMEs) that do not have the capacity to set up their own training schemes and places the onus to secure training on the contractors themselves.

II. Commission Report

In 2016, the Commission published a report “examining Union legislation with respect to training of natural persons for the safe handling of alternative refrigerants to replace or reduce the use of fluorinated greenhouse gases.”⁶ The report demonstrated very low figures of training across the EU,⁷ noting that “[a]lready in 2018 HFC availability... must be reduced by 37% compared to 2015” and “[b]y that time it will be important that a much higher proportion of technicians have been trained.”⁸

Table 1: Availability of Training in Member States in 2016

| | Ammonia | CO ₂ | Hydrocarbons (smaller systems) | Hydrocarbons (larger systems) |
|---|---------|-----------------|--------------------------------|-------------------------------|
| Availability of Training in Natural Refrigerants (% of Member States) | 71% | 52% | 48% | 35% |
| Certified Personnel Trained in Natural Refrigerants | 2.3% | 2.2% | 0.7% | 0.05% |

Several barriers contribute to the lack of trained technicians and engineers, both among contractors that install and maintain equipment and professional engineers that specify and design equipment.⁹ **First**, although training materials are generally available, such as informational documents and software, there is a lack of translation into all relevant languages.¹⁰ Translation would encourage wider use across the EU. **Second**, although some Member States plan to open up additional practical training facilities for hands-on training on relevant equipment, such as Germany and the Netherlands, there is a considerable shortage of such facilities in many regions.¹¹ This is particularly important since some natural refrigerants are toxic or flammable or operate at higher pressures.¹² **Third**, and fundamental in our view, Member States do not mandate practical training on natural refrigerants as part of their certification programmes. Although not required by the EU F-Gas Regulation, nothing precludes Member States from requiring mandatory training as part of their national regulatory framework and, to this end, the Commission included (and funded) training on natural refrigerants as a key priority in 2016 under its LIFE programme, the primary funding instrument for the environment and climate action in the EU.¹³ It goes without saying that the lack of training on natural refrigerants prolongs undue HFC reliance, amplifying the impact of the HFC phase-down.

In addition to requiring mandatory training at the national level, the EU F-Gas Regulation empowers the Commission “[i]n the event that it appears necessary... to provide a more harmonised approach to training and certification,” and to this end may adopt implementing acts that “adapt and update the minimum requirements as to the skills and knowledge to be covered” and “specify the modalities of the certification or attestation and the conditions.” This could take the form of expanding upon the type of information that must be provided on natural-refrigerant technologies to include training modules with minimum theoretical knowledge requirements and practical instruction on relevant equipment at training centers. To date, however, the Commission has not taken such action.

III. Recommendations

- **Incorporate Mandatory Natural-Refrigerant Training into National Certification Schemes.** National authorities should update their certification programmes to include mandatory training on the installation and maintenance of equipment relying on natural refrigerants. This

will not only familiarise contractors with the full range of alternatives available, but will ensure their safe handling in instances of flammability, toxicity or increased pressure.

- **Adopt Implementing Acts to Harmonise Training and Certification.** The Commission should be requested to adopt implementing acts to adapt and update the minimum requirements for certification programmes to address natural refrigerants, which would then be presented to Member States for adoption.

EUROPEAN AND NATIONAL STANDARDS

I. Background

In November 2017, the Commission formally adopted its long-awaited *Commission Implementing Decision on a Standardisation Request as Regards Use of Flammable Refrigerants in Refrigeration, Air-Conditioning and Heat Pump Equipment* under Regulation (EU) No 1025/2012 on European Standardisation. In it, the Commission requests the European Committee for Standardisation (CEN) and the European Committee for Electrotechnical Standardisation (CENELEC) to update technical specifications that have unnecessarily restricted the safe use of flammable refrigerants.¹⁴

Regulation (EU) No 1025/2012 empowers the Commission to request a European standardisation deliverable (ESD) with technical specifications to achieve stated policy objectives, and further to determine its content (requirements) and deadline for adoption.¹⁵ The technical specifications are defined as:

[A] document that prescribes technical requirements to be fulfilled by a product, process, service or system and which lays down one or more of the following:

- (a) the characteristics required of a product including levels of quality, performance, interoperability, environmental protection, health, safety or dimensions, and including the requirements applicable to the product as regards the name under which the product is sold, terminology, symbols, testing and test methods, packaging, marking or labelling and conformity assessment procedures;
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- (c) the characteristics required of a service including levels of quality, performance, interoperability, environmental protection, health or safety, and including the requirements applicable to the provider as regards the information to be made available to the recipient, as specified in Article 22(1) to (3) of Directive 2006/123/EC.

ESD are adopted as implementing acts via the examination procedure, following consultation of the European standardisation organisations (CEN and CENELEC) and the committee set up by the corresponding Union legislation (the expert committee established under Article 24 of the EU F-Gas Regulation).¹⁶

II. Standardisation Request

In its request, the Commission specifically requires CEN and CENELEC “to draft a European standardisation deliverable with technical specifications for the use of flammable refrigerants, in particular those classified as A3, in refrigeration, air conditioning and heat pump equipment.”¹⁷ The Commission lists the stated policy objective as:

Whilst the drafting and review of harmonised standards should continue under the standardisation requests issued in support of the relevant product safety legislation, a new European standardisation deliverable with other technical specifications than European standards... for the installation and operation of refrigeration, air conditioning and heat pump equipment containing flammable refrigerants, complementing existing harmonised standards, should be requested. These technical specifications should provide guidance on how to allow a wider use of flammable refrigerants without compromising health and safety of consumers, workers and property and could also serve as basis for the development of national codes, standards or legislation in the Member States.¹⁸

To do so, CEN and CENELEC must come up with technical specifications that “provide for risk mitigation measures not yet addressed in existing standards for specific refrigerant classes, or not fully reflecting the state of the art, and establish complementary specifications for the installation of equipment in order to enable a wider use of flammable refrigerants without compromising safety.”¹⁹ This must also address “the installation of equipment operating with flammable refrigerants, in particular those with flammability classification A3, developed on the bases of an assessment of the evolving standardisation of the refrigeration, air-conditioning and heat pump sector.”²⁰

The Commission sets out three main requirements in its request:

Work Programme. CEN and CENELEC must prepare a joint work programme, with a timetable for the execution of the work, and to follow any priorities expressed by the Commission in the work programme, with annual reporting taking place in December of each year until the submission of a final report in February 2021.²¹

Technical Assessment. By 30 December 2019, an assessment, based on a thorough assessment of the refrigeration, air-conditioning and heat pump market, that: (i) reviews safety-related barriers, compares risks presented by other technologies; (ii) assesses risk analyses in existing standards, identifying potential needs for additional research; (iii) analyses the relationship between risk and increased charge size, the acceptability of risk compared to other technologies, and options for additional mitigation requirements; and (iv) identifies options for performance-based requirements and risk mitigation measures.²²

Technical Specifications. By 15 November 2020, timed just before the 55% reduction in 2021, technical specifications that: (i) extend charges size limits and associated risk mitigation requirements; (ii) set out room design and structural requirements; and (iii) contain measures to prevent alterations of risk mitigation measures after installation.²³

The main difference between an ESD and a standard is that national transposition of the technical specifications in an ESD is not required.²⁴ However, given that the ESD in question here will contain technical specifications for the safe use of A3 flammable refrigerants, upon which reliance is compelled in order to meet the HFC phase-down, national standardisation bodies should be encouraged to transpose them. Moreover, and for similar reasons, CEN and CENELEC should initiate a parallel process to update all relevant EN, including but not limited to EN 378 and EN 60335-2-89, to harmonise these technical specifications for the safe use of A3 flammable refrigerants across the EU. In both cases, national authorities can play an important role in preserving the integrity of the CEN and CENELEC process and ensuring the technical specification are fit for purpose.

III. Recommendations

- **Safeguard the Integrity of the Standardisation Request.** The single most important activity that Member States can undertake is to exercise oversight and ensure smooth progress to develop standards to allow the safe use of flammable refrigerants. This can be done by monitoring the process and participating in national mirror committees of the F-Gas Standardisation Request Working Group, keeping in touch with national standardisation bodies and experts and, if and where applicable, taking part in the national discussion.

MARKET RESTRICTIONS ON NEW HFC-BASED EQUIPMENT

I. Background

The EU F-Gas Regulation contains a series of placing on the market prohibitions (bans) on new HFC-based equipment in various sectors.²⁵ Their purpose is to guide the HFC phase-down, but due to strong industry push-back during the negotiations, the date of the prohibition in many cases has been set too late or the GWP threshold is set too high for the ban to operate as an effective sign-post to meet the pace of the HFC phase-down. Although this represents a missed opportunity, Member States could use additional bans to guide the HFC phase-down within their borders. Because the EU F-Gas Regulation was adopted under an environmental legal basis, namely Article 192(1) of the Treaty on the Functioning of the European Union (TFEU), Member States may introduce more stringent protective measures so long as compatible with the Treaties, which means the measures do not constitute arbitrary discrimination or disguised restriction on trade (Articles 34-36 TFEU).²⁶

II. Placing on the Market Prohibitions

There are many good reasons for Member States to adopt national bans. **First**, industry itself is in effect calling for bans. Recently, European associations representing the RACHP industry, including fluorochemical companies (EFCTC), contractors (AREA) and component manufacturers (ASERCOM) and EPEE issued a joint publication urging contractors to stop installing new refrigeration equipment relying on HFC-404A (GWP 3922) and HFC-507A (GWP 3985).²⁷ Ironically, the bans that would have required contractors to stop installing equipment relying on HFC-404A and HFC-507A, proposed by the European Parliament and supported by many Member States, were fiercely opposed and weakened by many of these same groups. **Second**, despite knowing that the schedule for the HFC phase-down is premised on a swift transition to low-GWP technologies, many fluorochemical companies continue to market medium-GWP HFCs and blends as solutions for new equipment, intensifying HFC shortages and price increases and putting at risk the financial solvency of SMEs installing them.²⁸

Member States should therefore consider introducing bans when alternatives can meet or are close to meeting market demand in a given subsector. Unless bans are adopted, new HFC-based equipment will continue to be placed on the market in those subsectors where it is not needed, locking in HFC infrastructure for decades into the future, undermining the uptake of alternatives and using up valuable HFC quotas that are needed for other sectors. Clear market signals with concrete timeframes for companies and investors ensure proper planning and investment. Allowing HFC-based equipment when it is no longer necessary places undue burden on the HFC phase-down and reliance on containment and recovery measures that are expensive and suffer from compliance and enforcement problems, further burdening Member States. Three obvious candidates for national bans either in advance of the current bans or where no bans currently exist under the EU F-Gas Regulation are: multipack centralised refrigeration systems; single split air-conditioning systems; and residential heat pumps.

III. Recommendations

- **Advance the Date of the Ban for Multipack Refrigeration Systems.** Although there is already a ban on multipack centralised refrigeration systems relying on HFCs with GWP 150 or more, it only takes effect in 2022.²⁹ This date should be advanced in Member States, and there is ample technical support for moving it to 2019 or 2020.³⁰
- **Strengthen the Ban on Single Split Air-Conditioning Systems.** In light of the standardisation request discussed above, which will set out technical specifications for the safe use of flammable refrigerants, Member States should advance the date of the ban on single split air-conditioning systems to 2022 and reduce the threshold to GWP 150 or less.
- **Consider a Ban on Residential Heat Pumps.** Industry experts have commented on the absence of placing on the market prohibitions in the EU F-Gas Regulation for the heat pump sector, and have also noted that heat pumps are not moving quickly to alternatives to HFC-410A.³¹ Member States should consider implementing at the earliest opportunity a ban on new residential heat pumps with GWP 150 or more.

PUBLIC PROCUREMENT

I. Background

Public authorities spend approximately €1.8 trillion annually, representing around 14% of EU gross domestic product (GDP), making them major consumers with the ability to influence markets and stimulate demand.³² Established in 2008, EU Green Public Procurement (GPP) is a voluntary policy instrument where product specifications are based on environmental impacts and go beyond the minimum performance requirements. All contracts must be awarded on the basis of the most economically advantageous tender (MEAT), however, this cost or price can be, and is increasingly being, calculated on the basis of total lifecycle costs.³³ Many Member States have their own public procurement approaches which normally closely resemble the EU approach, in some cases going beyond EU requirements. National Action Plans (NAPs) set out green public procurement policy for Member States, and are designed to provide advice to public procurers.³⁴ 23 Member States have adopted NAPs – most of which are in line with the requirements of GPP. No NAPs have been adopted in Estonia, Greece, Hungary, Luxembourg or Romania.³⁵ The front runners for most inclusive NAPs are Austria, Belgium, Denmark, France, Finland, Germany, Netherlands, Norway, Sweden and the United Kingdom. NAPs are meant to be revised every three years but often are not, with extensions published online instead.³⁶ F-gas experts can help inform procurers on what is required and why.³⁷

II. Commission Report

In 2015, the Commission funded a study to review the extent to which GPP in Member States advances the objectives of the EU F-Gas Regulation.³⁸ The conclusions were underwhelming, noting that “there does not seem to be, across the board, significant use of GPP to address the topic of F-gases and promote the use of alternative low-GWP refrigerants within the EU today.”³⁹ Moreover, where GPP criteria were adopted in Member States, its application was often uneven given its voluntary nature and the lack of monitoring.⁴⁰ GPP has the potential to serve as a market pull for certain product groups in key subsectors. A principal value of GPP is that it can expand markets for environmentally innovative products going beyond minimum mandatory requirements. Although some product groups may not need a market pull, other product groups would be greatly assisted with benefits to the governmental bottom line and economy at large.

III. Recommendations

- **Adopt GPP Policies for Air-Conditioning and Heat Pumps.** At all scales in public buildings, GPP could be an invaluable tool to promote the uptake of energy-efficient low-GWP air-conditioning and heat pumps as well as for expanding the number of certified personnel trained on their installation and maintenance. For example, airports such as Heathrow in the UK, Copenhagen in Denmark and Stuttgart in Germany already use ammonia chillers to provide cooling, and other airports and very large public spaces, such as stadiums or hospitals, should follow suit.⁴¹ In addition, given the importance of the uptake of hydrocarbon single split air-conditioning units, promoting their uptake in public buildings—government offices, educational facilities such as schools and universities, social housing, healthcare facilities such as hospitals and clinics, museums, and others—would be an important contribution to this sector given the number of public buildings implicated.
- **Adopt GPP Policies in Refrigeration.** GPP could also be useful in promoting energy-efficient low-GWP technologies in medium and large refrigeration, such as condensing units, multipack systems, cold storage and transport refrigeration used by catering facilities at government buildings, hospitals and universities in addition to refrigeration used at mortuaries, medical facilities, research laboratories, ports and so on.

SUPPORT FOR SMALL- AND MEDIUM-SIZED END USERS

I. The Importance of End Users

End users of equipment containing HFCs are responsible for a large proportion of HFC consumption but are often less engaged or aware of the requirements of legislation than manufacturers and suppliers. This is particularly the case with SMEs. It is critical that Member States engage end users so that they understand the changes required and can demand the technologies they need from contractors and suppliers, which then works upward through the entire chain. Currently refrigerant choice is dominated by the manufacturers and suppliers, and not by the end users who will ultimately suffer if their equipment is no longer viable maintained because of HFC shortages, high HFC prices or, in the case of supermarket equipment, bans on servicing equipment with high-GWP HFCs.

In 2016 EIA, Climate Advisors Network, ECODES and ZERO surveyed 22 European retailers regarding their readiness for the EU F-Gas Regulation and asked what governments could do to assist their implementation. Among a number of issues raised, including the need to increase the allowable charge of hydrocarbons and better training on natural refrigerants for contractors, the retailers clearly identified:

- Economic incentives, especially for equipment replacement and for SMEs;
- Incentives for innovation and financial support for efficient low-GWP solutions; and
- Clearer signals regarding the evolution of the regulations on refrigerants.

In 2017, ComRes surveyed 140 food retailers across France, Germany and the UK.⁴² It found only 56% of respondents had started making the shift from HFCs to natural refrigerants with 40% unaware of upcoming regulatory changes related to the HFC phase-down.⁴³ In response to queries on what type of encouragement could accelerate the replacement of HFC-based refrigeration systems with natural refrigerants, the two most popular with respondents were depreciation schemes or other tax rebates (43%) and procurement of less expensive low-GWP technologies (40%).⁴⁴ This places an onus on national authorities to provide more

incentives to retailers looking to make the transition, and to explore ways to increase the market uptake of low-GWP technologies to bring down costs.

A number of Member States have already implemented or proposed measures to incentivise the transition to natural refrigerant technologies, including Belgium,⁴⁵ Denmark,⁴⁶ Germany,⁴⁷ the Netherlands,⁴⁸ Portugal⁴⁹ and Spain.⁵⁰ These measures need to be more widely implemented across the Member States and to prioritise SMEs in key sectors such as refrigeration and air-conditioning.

II. Recommendations

- **Provide Regular Updated Information to End Users.** Member States should identify, with the assistance of RACHP and contractor associations, the best way to disseminate to all end users, including SMEs, regular up-to-date information on the status of the EU F-Gas Regulation and the requirements to be met, including the predicted impact of the HFC phase-down on HFC supplies and prices. It is not enough for end users to consider only placing on the market prohibitions in their refrigerant transition plans.
- **Support SMEs with financial and other incentives.** Member States should identify those sectors where SMEs may be slow to react to the EU F-Gas Regulation despite the availability of HFC-free alternatives and provide short-term financial incentives to encourage a faster transition. A key sector in this case is commercial refrigeration, where up-front costs of new CO₂-based equipment, particularly in smaller-format stores, can be a barrier to the full-scale adoption of efficient CO₂ refrigeration.

ILLEGAL TRADE AND HFC LICENSING SYSTEM

I. Illegal HFC Trade

Illegal HFC trade is set to become a significant problem in the EU in the coming years without proactive efforts to improve monitoring and enforcement. Illegal traders engage in many practices to smuggle their goods, including the following:⁵¹

- **False Labelling and Mis-Declaration.** Illegal traders may disguise HFC refrigerants by putting names of similar but uncontrolled or permissible substances on shipping documents and invoices. For example, in the context of EU HFC phase-down, the controlled substance HFC-134a (used in mobile air-conditioning) can serve as a drop-in replacement for the uncontrolled substance HFC-1234yf (also used in mobile air-conditioning). It is possible that HFCs could be falsely labelled or mis-declared as unsaturated HFCs in order to evade the quota system.
- **Fake Recycled Material.** Illegal traders could disguise virgin HFC refrigerants by claiming they are recycled on shipping documents and permits. In the past, with CFCs, traders have even deliberately added a small amount of contaminant to make it appear to have been used, should it be tested.
- **Concealment.** Illegal traders may simply hide HFC refrigerants in ships, trucks or cars and move them across porous borders, or conceal them through measures such as double layering, whereby cylinders are hidden behind crates of legal cargo, often something else entirely.
- **Transshipment Fraud.** Consignments ostensibly destined for legitimate end markets could be diverted onto black markets. This typically occurs along complex shipping routes, passing through transit ports

and free-trade zones where customs procedures and tracking of goods passing through are more relaxed.

Although an important deterrent for illegal HFC trade is regular customs checks, these alone will be inadequate in the absence of complementary HFC licensing system. Currently, it is not possible for customs officers to check in real time whether an HFC import is covered by a legitimate quota. Fortunately, the Kigali Amendment requires just such an HFC licensing system.

II. HFC Licensing System

The Kigali Amendment requires the EU to adopt an HFC licensing system by 1 January 2019 to control the import and export of controlled substances:

2 bis. Each Party shall, by 1 January 2019 or within three months of the date of entry into force of this paragraph for it, whichever is later, establish and implement a system for licensing the import and export of new, used, recycled and reclaimed controlled substances in Annex F. Any Party operating under paragraph 1 of Article 5 that decides it is not in a position to establish and implement such a system by 1 January 2019 may delay taking those actions until 1 January 2021.⁵²

This obligation to adopt an HFC licensing system could not come at a more timely moment as early indicators suggest illegal HFC imports into the EU are already occurring. For example, in 2015, Honeywell claimed that over 10 million tonnes of CO₂e of illegal imports entered the EU in 2015 and has recently claimed that some countries are importing 2.5 times more HFCs than before the HFC phase-down.⁵³ The lack of a system in place allowing national customs authorities to check whether an importer has adequate HFC quota—*i.e.* an HFC licensing system—is identified as the primary shortcoming.⁵⁴ The Commission has recently contracted a study to look at illegal trade, which concluded that the data examined did not indicate large scale illegal HFC imports.⁵⁵ EIA's analysis of Eurostat and Chinese customs HFC trade data on the other hand does show some large discrepancies. Total EU reported HFC imports from China in 2016 were 47,193 tonnes, compared to total Chinese reported HFC exports into the EU in 2016 were 57,584 tonnes, some 19.8% higher. Data pertaining to some specific member states shows even larger discrepancies.

A. Background on Licensing Systems under the Montreal Protocol

The Montreal Protocol, when adopted in 1989, did not contain an obligation for Parties to establish and maintain a licensing system. Not long after, however, as control measures for ozone-depleting substances (ODS) began to come into effect, Parties agreed on the need to “monitor and regulate trade by means of import and export licenses.”⁵⁶ In particular, in 1995, Parties agreed to incorporate within two years a “licensing system, including a ban on unlicensed imports and exports.”⁵⁷ Thereafter, at the Ninth Meeting of the Parties in 1997, Parties amended the Montreal Protocol to require a licensing system under *Article 4B: Licensing*:

1. Each Party shall, by 1 January 2000 or within three months of the date of entry into force of this Article for it, whichever is the later, establish and implement a system for licensing the import and export of new, used, recycled and reclaimed controlled substances in Annexes A, B, C and E.
2. Notwithstanding paragraph 1 of this Article, any Party operating under paragraph 1 of Article 5 which decides it is not in a position to establish and implement a system for licensing the import and export of controlled substances in Annexes C and E, may delay taking those actions until 1 January 2005 and 1 January 2002, respectively.

3. Each Party shall, within three months of the date of introducing its licensing system, report to the Secretariat on the establishment and operation of that system.
4. The Secretariat shall periodically prepare and circulate to all Parties a list of the Parties that have reported to it on their licensing systems and shall forward this information to the Implementation Committee for consideration and appropriate recommendations to the Parties.

Article 4B: Licensing requires Parties to establish and implement an import and export licensing system, *i.e.* a scheme whereby a license is granted by a competent authority for an individual to exercise the export and import of controlled substances that, without such prior authorisation, would constitute an illegal act. This licensing system must cover all controlled substances, whether new, used, recycled or reclaimed and regardless of the purpose of the export or import, and is to be supported by a ban on unlicensed exports and imports.⁵⁸

In the accompanying decision, *Decision IX/8: Licensing System*, Parties identified the objectives for requiring Parties “to implement an import and export licensing system” as to: (i) assist collection of sufficient information to facilitate compliance with relevant reporting requirements under Article 7; (ii) assist in the prevention of illegal traffic of controlled substances, including through notification and regular reporting by exporting countries to importing countries and allowing cross-checking of information between exporting and importing countries; and (iii) facilitate the efficient notification, reporting and cross-checking of information.⁵⁹ It should be noted that, under the Montreal Protocol, licensing and reporting are two different types of activities that serve different though sometimes overlapping objectives.⁶⁰

The Kigali Amendment extends the licensing obligation to HFCs through an amendment to *Article 4B: Licensing* that requires:

- 2 bis.* Each Party shall, by 1 January 2019 or within three months of the date of entry into force of this paragraph for it, whichever is later, establish and implement a system for licensing the import and export of new, used, recycled and reclaimed controlled substances in Annex F.

To comply with this requirement, the EU now needs to adopt an HFC licensing system for those HFCs listed in Annex F. This could be done by revising the EU F-Gas Regulation, adopting implementing acts to adapt the electronic registry, amending the licensing system in the ODS Regulation to include HFCs, or adopting a stand-alone piece of legislation, as discussed below.

B. Commission Decision Not to Adopt an HFC Licensing System

In the Impact Assessment that accompanied the EU F-Gas Regulation, the Commission explicitly declined to propose an HFC licensing system at the time, citing the following barriers to its implementation:⁶¹

An involvement of the customs authorities in the verification of reported imports and exports had been considered, as practiced under the ODS regulation. However, the trade in ODS requires a systematic licensing of each consignment which forms the basis for the checks carried out by the customs authorities. Unless required by an international agreement under the Montreal Protocol, a licensing system should not be envisaged for the HFC in order to reduce the administrative burden for the companies and authorities involved. Furthermore, the applicable customs codes do not (yet) distinguish between HFCs and other substances serving the same purposes. Based on the current HS code for HFCs (CN 2903 39), additional

end-numbers for different HFC types in bulk would need to be established to allow customs verifying in spot checks the HFC types and quantities shipped across the EU border.

The Kigali Amendment makes clear that an HFC licensing system is now required. In addition, Commission Implementing Regulation (EU) 2015/1754 has been published, setting out combined nomenclature (CN) codes for specific HFC chemicals.⁶² Moreover, efforts are underway to establish codes for specific HFC chemicals under the WCO Harmonized Commodity Description and Coding System (HS). In other words, the barriers to the implementation of an ODS-style licensing system no longer exist.

III. Recommendations

- **Determine the Appropriate Legislative Instrument.** At least four options are available for compliance with *Article 4B: Licensing* obligations: (i) amend the EU F-Gas Regulation, though this may subject its other provisions to amendment, a consideration that may work against this approach; (ii) adopt implementing acts via the examination procedure under Article 17(2) of the EU F-Gas Regulation to adapt the electronic registry to comply with HFC licensing obligations; (iii) amend the ODS Regulation to include HFCs in its ODS licensing system, which would ease the administrative burden by relying on an existing platform and limit the risk of backsliding on the obligations in the EU F-Gas Regulation; or (iv) adopt a stand-alone piece of legislation setting out an HFC licensing system.
- **Require Licensing of All Fluorinated Greenhouse Gases Listed in Annexes I and II.** While *Article 4B: Licensing* only requires an HFC licensing system for the 18 HFCs listed in Annex F, there are valid policy justifications for extending it to all fluorinated greenhouse gases listed in Annex I and II of the EU F-Gas Regulation. Omitting any of these fluorinated greenhouse gases, in particular unsaturated HFCs (sometimes called HFOs), will cause predictable problems that threaten the integrity of the HFC phase-down. It creates a significant void in information, in particular for the vast majority of mid-GWP blends that have been proposed for use, that makes monitoring and tracking HFCs much more difficult and nearly impossible to identify discrepancies that are early indicators of illegal activity. It also encourages mislabelling to avoid licensing and controls on production and consumption. For example, in mobile air conditioning, HFC-1234yf is being used in many new vehicles. There is a growing concern that HFC-134a, which is much less expensive, will be a desirable drop-in during servicing. Without reporting and licensing on HFC-1234yf, there is the potential for significant undetected illegal trade in intentionally mislabelled and far less expensive mid- to high-GWP HFCs.

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